Trig Final (Practice v29)
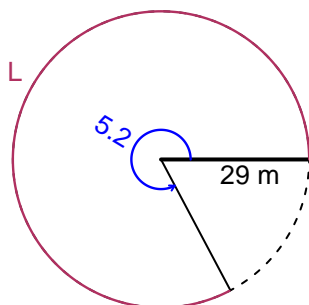
- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 29 meters. The angle measure is 5.2 radians. How long is the arc in meters?
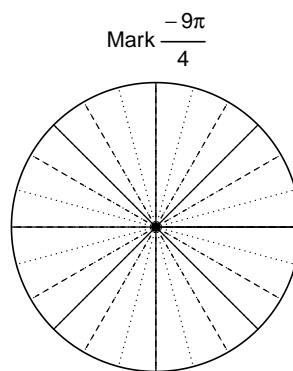

Question 2

Consider angles $\frac{17\pi}{6}$ and $\frac{-9\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{17\pi}{6}\right)$ and $\cos\left(\frac{-9\pi}{4}\right)$ by using a unit circle (provided separately).

Mark $\dfrac{17\pi}{6}$

Mark $\dfrac{-9\pi}{4}$

Find sin(17π/6)
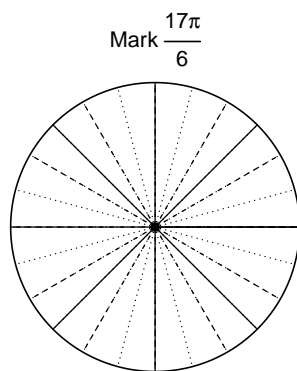
Find cos(−9π/4)

Question 3

If $\cos(\theta) = \frac{-65}{97}$, and θ is in quadrant III, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 2.2 meters, a frequency of 4.7 Hz, and a midline at $y = -6.28$ meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).